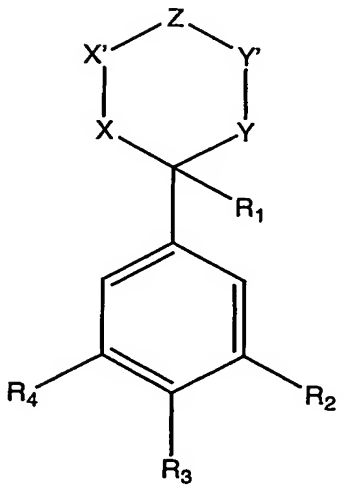
CLAIMS

1. A compound of formula (I), or a pharmaceutically acceptable salt or prodrug thereof



(I)

wherein X and X' are independently selected from $-C(R_5)_2-$, –O-, -S-, $-N(R_5)-$, or taken together form $-C(R_5)=C(R_5)-$, $-C(R_5)=N-$, $-N=C(R_5)-$, $-N(R_5)-N(R_5)-$ or –N=N-;

Y and Y' are independently selected from $-C(R_5)_2-$, –O-, -S-, $-N(R_5)-$, or taken together form $-C(R_5)=C(R_5)-$, $-C(R_5)=N-$, $-N=C(R_5)-$, $-N(R_5)-N(R_5)-$ or –N=N-;

Z is $-C(R_5)_2-$, -O-, -S- or $-N(R_5)-$, or forms a covalent single or double bond between X' and Y', or Z together with X' or Y' forms $-C(R_5)=C(R_5)-$, $-C(R_5)=N-$, $-N=C(R_5)-$, $-N(R_5)-N(R_5)-$ or –N=N-;

wherein when Z is –O-, -S- or $-N(R_5)-$, X' and Y' are $-C(R_5)_2-$;

when X is –O-, -S- or $-N(R_5)-$, X' is $-C(R_5)_2-$;

when Y is –O-, -S- or $-N(R_5)-$, Y' is $-C(R_5)_2-$; or

X or Y together with the carbon atom bearing the phenyl group form a double bond wherein which ever of X or Y forms part of the double bond is selected from $-C(R_5)-$ and –N-;

R_1 is selected from hydrogen, $C_{1\text{-}20}$alkyl, $C_{2\text{-}20}$alkenyl, $C_{2\text{-}20}$alkynyl, $(A)_nC(O)R_6$, $(A)_nC(S)R_6$, $(A)_nS(O)R_6$, $(A)_nS(O)_2R_6$, $(A)_nOR_7$, $(A)_nSR_7$, $(A)_nN(R_8)$, $(A)_nC(=NR_9)R_{10}$ and

$(A)_nR_{11}$, or when X or Y together with the carbon atom bearing the phenyl group form a double bond, R_1 is absent;

R_2 and R_4 are independently selected from hydrogen, C_{1-3}alkyl and $(A)_mR_{12}$;

R_3 is selected from C_{1-3}alkyl, $(A)_mR_{12}$, $(A)_m$aryl and $(A)_m$heterocyclyl;

R_5 is selected from hydrogen, C_{1-20}alkyl, C_{2-20}alkenyl, C_{2-20}alkynyl, $(A)_nC(O)R_6$, $(A)_nC(S)R_6$, $(A)_nS(O)R_6$, $(A)_nS(O)_2R_6$, $(A)_nOR_7$, $(A)_nSR_7$, $(A)_pN(R_8)$, $(A)_nC(=NR_9)R_{10}$ and $(A)_nR_{11}$;

R_6 is selected from hydrogen, C_{1-20}alkyl, C_{2-20}alkenyl, C_{2-20}alkynyl, OH, OC_{1-10}alkyl, OC_{2-10}alkenyl, OC_{2-10}alkynyl, $O(A)_qR_{11}$, SH, SC_{1-10}alkyl, SC_{2-10}alkenyl, SC_{2-10}alkynyl, $S(A)_qR_{11}$, $N(R_{13})_2$, $[NH\text{-}CH(R_{14})C(O)]_s\text{-}OH$, $[NH\text{-}CH(R_{14})C(O)]_s\text{-}OC_{1-3}$alkyl, $[sugar]_s$ and $(A)_qR_{11}$;

R_7 is selected from hydrogen, C_{1-20}alkyl, C_{2-20}alkenyl, C_{2-20}alkynyl, $(A)_qR_{11}$, C(O)H, $C(O)C_{1-10}$alkyl, $C(O)C_{2-10}$alkenyl, $C(O)C_{2-10}$alkynyl, C(O)-aryl, $C(O)(A)_qR_{11}$, $C(O)_2H$, $C(O)_2C_{1-10}$alkyl, $C(O)_2C_{2-10}$alkenyl, $C(O)_2C_{2-10}$alkynyl, $C(O)_2$-aryl, $C(O)_2(A)_qR_{11}$, C(S)H, $C(S)C_{1-10}$alkyl, $C(S)C_{2-10}$alkenyl, $C(S)C_{2-10}$alkynyl, C(S)-aryl, $C(S)(A)_qR_{11}$, C(S)OH, $C(S)OC_{1-10}$alkyl, $C(S)OC_{2-10}$alkenyl, $C(S)OC_{2-10}$alkynyl, C(S)O-aryl, $C(S)O(A)_qR_{11}$, $S(O)_tH$, $S(O)_tC_{1-10}$alkyl, $S(O)_tC_{2-10}$alkenyl, $S(O)_tC_{2-10}$alkynyl, $S(O)_t$-aryl, $S(O)_t(A)_qR_{11}$, $[C(O)CH(R_{14})NH]_s\text{-}H$, $[C(O)CH(R_{14})NH]_s\text{-}C_{1-10}$alkyl, $[C(O)CH(R_{14})NH]_s\text{-}C_{2-10}$alkenyl, $[C(O)CH(R_{14})NH]_s\text{-}C_{2-10}$alkynyl, $[C(O)CH(R_{14})NH]_s$-aryl, $[C(O)CH(R_{14})NH]_s\text{-}(A)_qR_{11}$ and $[sugar]_s$;

each R_8 is independently selected from R_7 and $NHC(=NR_{15})NH_2$;

R_9 is selected from hydrogen and C_{1-6}alkyl;

R_{10} is selected from C_{1-6}alkyl, NH_2, $NH(C_{1-3}alkyl)$, $N(C_{1-3}alkyl)_2$, OH, OC_{1-3}alkyl, SH and SC_{1-3}alkyl;

R_{11} is selected from OH, OC_{1-6}alkyl, $OC_{1-3}alkyl\text{-}O\text{-}C_{1-3}$alkyl, O-aryl, O-heterocyclyl, $O[C(O)CH(R_{14})NH]_sH$, $[sugar]_s$, SH, SC_{1-6}alkyl, $SC_{1-3}alkyl\text{-}O\text{-}C_{1-3}$alkyl, S-aryl, S-heterocyclyl, $S[C(O)CH(R_{14})NH]_sH$, halo, $N(R_{15})_2$, $C(O)R_{16}$, CN, $C(R_{17})_3$, aryl and heterocyclyl;

R_{12} is selected from OH, SH, NH_2, halo, NO_2, $C(R_{17})_3$, $OC(R_{17})_3$ and CN;

each R_{13} is independently selected from hydrogen, C_{1-6}alkyl, C_{2-6}alkenyl, C_{2-6}alkynyl and $(A)_qR_{11}$;

R_{14} is the characterising group of an amino acid;

each R_{15} is independently selected from hydrogen, C_{1-6}alkyl, C_{1-3}alkoxyC_{1-3}alkyl, aryl and heterocyclyl;

R_{16} is selected from C_{1-3}alkyl, OH, C_{1-3}alkoxy, aryl, aryloxy, heterocyclyl and heterocyclyloxy;

each R_{17} is independently selected from hydrogen and halogen;

A is optionally substituted methylene wherein when n > 1, any two adjacent A groups are optionally interrupted by –O-, -S- or -N(R_{15})-;

where n is 0 or an integer selected from 1 to 20;

m is 0 or an integer selected from 1 to 3;

p is an integer selected from 1 to 20;

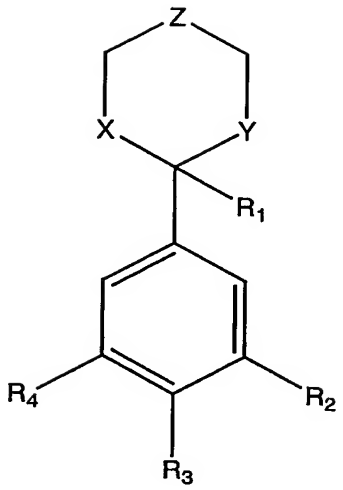
q is an integer selected from 1 to 10

s is an integer selected from 1 to 5;

t is an integer selected from 1 or 2; and

wherein each alkyl, alkenyl , alkynyl, aryl and heterocyclyl may be optionally substituted.

2. A compound according to claim 1 of formula (II), or a pharmaceutically acceptable salt or prodrug thereof



(II)

wherein X and Y are independently selected from –O-, -S-, -N(R_5)- and –C(R_5)$_2$-;

Z is –C(R_5)$_2$- or is a covalent bond between adjacent methylene groups;

R_1 is selected from hydrogen, C_{1-20}alkyl, C_{2-20}alkenyl, C_{2-20}alkynyl, $(A)_nC(O)R_6$, $(A)_nC(S)R_6$, $(A)_nS(O)R_6$, $(A)_nS(O)_2R_6$, $(A)_nOR_7$, $(A)_nSR_7$, $(A)_nN(R_8)$, $(A)_nC(=NR_9)R_{10}$ and $(A)_nR_{11}$;

R_2 and R_4 are independently selected from hydrogen, C_{1-3}alkyl and $(A)_mR_{12}$;

R_3 is selected from C_{1-3}alkyl, $(A)_mR_{12}$, $(A)_m$aryl and $(A)_m$heterocyclyl;

R_5 is selected from hydrogen, C_{1-20}alkyl, C_{2-20}alkenyl, C_{2-20}alkynyl, $(A)_nC(O)R_6$, $(A)_nC(S)R_6$, $(A)_nS(O)R_6$, $(A)_nS(O)_2R_6$, $(A)_nOR_7$, $(A)_nSR_7$, $(A)_pN(R_8)$, $(A)_nC(=NR_9)R_{10}$ and $(A)_nR_{11}$;

R_6 is selected from hydrogen, C_{1-20}alkyl, C_{2-20}alkenyl, C_{2-20}alkynyl, OH, OC_{1-10}alkyl, OC_{2-10}alkenyl, OC_{2-10}alkynyl, $O(A)_qR_{11}$, SH, SC_{1-10}alkyl, SC_{2-10}alkenyl, SC_{2-10}alkynyl, $S(A)_qR_{11}$, $N(R_{13})_2$, [NH-CH(R_{14})C(O)]$_s$-OH, [NH-CH(R_{14})C(O)]$_s$-OC_{1-3}alkyl, [sugar]$_s$ and $(A)_qR_{11}$;

R_7 is selected from hydrogen, C_{1-20}alkyl, C_{2-20}alkenyl, C_{2-20}alkynyl, $(A)_qR_{11}$, C(O)H, C(O)C_{1-10}alkyl, C(O)C_{2-10}alkenyl, C(O)C_{2-10}alkynyl, C(O)-aryl, C(O)$(A)_qR_{11}$, $C(O)_2H$, $C(O)_2C_{1-10}$alkyl, $C(O)_2C_{2-10}$alkenyl, $C(O)_2C_{2-10}$alkynyl, $C(O)_2$-aryl, $C(O)_2(A)_qR_{11}$, C(S)H, C(S)C_{1-10}alkyl, C(S)C_{2-10}alkenyl, C(S)C_{2-10}alkynyl, C(S)-aryl, C(S)$(A)_qR_{11}$, C(S)OH, C(S)OC_{1-10}alkyl, C(S)OC_{2-10}alkenyl, C(S)OC_{2-10}alkynyl, C(S)O-aryl, C(S)O$(A)_qR_{11}$, $S(O)_tH$, $S(O)_tC_{1-10}$alkyl, $S(O)_tC_{2-10}$alkenyl, $S(O)_tC_{2-10}$alkynyl, $S(O)_t$-aryl, $S(O)_t(A)_qR_{11}$,

$[C(O)CH(R_{14})NH]_s$-H, $[C(O)CH(R_{14})NH]_s$-C_{1-10}alkyl, $[C(O)CH(R_{14})NH]_s$-C_{2-10}alkenyl, $[C(O)CH(R_{14})NH]_s$-C_{2-10}alkynyl, $[C(O)CH(R_{14})NH]_s$-aryl, $[C(O)CH(R_{14})NH]_s$-$(A)_qR_{11}$ and $[sugar]_s$;

each R_8 is independently selected from R_7 and $NHC(=NR_{15})NH_2$;

R_9 is selected from hydrogen and C_{1-6}alkyl;

R_{10} is selected from C_{1-6}alkyl, NH_2, $NH(C_{1-3}alkyl)$, $N(C_{1-3}alkyl)_2$, OH, OC_{1-3}alkyl, SH and SC_{1-3}alkyl;

R_{11} is selected from OH, OC_{1-6}alkyl, OC_{1-3}alkyl-O-C_{1-3}alkyl, O-aryl, O-heterocyclyl, $O[C(O)CH(R_{14})NH]_sH$, $[sugar]_s$, SH, SC_{1-6}alkyl, SC_{1-3}alkyl-O-C_{1-3}alkyl, S-aryl, S-heterocyclyl, $S[C(O)CH(R_{14})NH]_sH$, halo, $N(R_{15})_2$, $C(O)R_{16}$, CN, $C(R_{17})_3$, aryl and heterocyclyl;

R_{12} is selected from OH, SH, NH_2, halo, NO_2, $C(R_{17})_3$, $OC(R_{17})_3$ and CN;

each R_{13} is independently selected from hydrogen, C_{1-6}alkyl, C_{2-6}alkenyl, C_{2-6}alkynyl and $(A)_qR_{11}$;

R_{14} is the characterising group of an amino acid;

each R_{15} is independently selected from hydrogen, C_{1-6}alkyl, C_{1-3}alkoxyC_{1-3}alkyl, aryl and heterocyclyl;

R_{16} is selected from C_{1-3}alkyl, OH, C_{1-3}alkoxy, aryl, aryloxy, heterocyclyl and heterocyclyloxy;

each R_{17} is independently selected from hydrogen and halogen;

A is optionally substituted methylene wherein when $n > 1$, any two adjacent A groups are optionally interrupted by –O-, -S- or $-N(R_{15})-$;

where n is 0 or an integer selected from 1 to 20;

m is 0 or an integer selected from 1 to 3;

p is an integer selected from 1 to 20;

q is an integer selected from 1 to 10

s is an integer selected from 1 to 5;

t is an integer selected from 1 or 2; and

wherein each alkyl, alkenyl , alkynyl, aryl and heterocyclyl may be optionally substituted.

3. A compound according to claim 2 wherein

X is -O-, -S-, -NH- or $-CH_2-$;

Y is -O-, -S- or $-NR_5-$;

Z forms a covalent bond between adjacent methylene groups;

R_1 is selected from C_{1-20}alkyl, C_{1-20}alkenyl, O-$(A)_qO$-C_{1-6}alkyl, O-$(A)_q$-heterocyclyl, O-$(A)_q$-sugar, O-$(A)_qO[C(O)CH(R_{14})NH]_s$-H, $(A)_nOH$, $(A)_nOC_{1-20}$alkyl, $(A)_nOC_{1-20}$alkenyl, $(A)_nOC(O)C_{1-20}$alkyl, $(A)_nOC(O)C_{1-20}$alkenyl, $(A)_nOC(O)$aryl, $(A)_nO[C(O)CH(R_{14})NH]_s$-H, $(A)_nO$[sugar]$_s$, $(A)_nNHC_{1-20}$alkyl, $(A)_nN(C_{1-20}alkyl)_2$, $(A)_nNHC_{1-20}$alkenyl, $(A)_nN(C_{1-20}alkenyl)_2$, $(A)_nNHC(O)C_{1-20}$alkyl, $(A)_nNHC(O)C_{1-20}$alkenyl, $(A)_nNHC(O)$aryl, $(A)_nNH[C(O)CH(R_{14})NH]_s$-H, $(A)_n$NH-[sugar]$_s$, $(A)_nSO_3H$, $(A)_nSO_3C_{1-20}$alkyl, $(A)_nSO_3C_{1-20}$alkenyl, $(A)_nC(O)C_{1-20}$alkyl, $(A)_nC(O)C_{1-20}$alkenyl, $(A)_nCO_2H$, $(A)_nCO_2C_{1-20}$alkyl, $(A)_nCO_2C_{1-20}$alkenyl, $(A)_nC(O)NHC_{1-20}$alkyl, $(A)_nC(O)N(C_{1-20}alkyl)_2$, $(A)_nC(O)NHC_{1-20}$alkenyl, $(A)_nC(O)N(C_{1-20}alkenyl)_2$, $(A)_nC(O)[NHCH(R_{14})C(O)]_s$-OH, $(A)_nC(O)$[sugar]$_s$; wherein A is methylene optionally substituted one or two times with a group that is independently selected from C_{1-6}alkyl, C_{2-6}alkenyl, C_{2-6}alkynyl, halogen, OH, OC_{1-6}alkyl, CO_2H, CO_2C_{1-3}alkyl, NH_2, NHC_{1-3}alkyl, $-N(C_{1-3}alkyl)_2$, CN, NO_2, aryl or heterocyclyl; R_{14} is the characterising group of an amino acid, n is 0 or an integer from 1 to 20 and s is an integer from 1 to 5;

R_2 is hydrogen, C_{1-3}alkyl, OH, SH, NH_2, $-NO_2$, CF_3, halo or -CN;

R_3 is hydrogen, C_1-C_3alkyl, $-(CH_2)_mNH_2$, $-(CH_2)_m$-OH, $-(CH_2)_m-CF_3$, $-(CH_2)_m$-SH or a 5 or 6 membered heterocyclic group, wherein m is 0 or an integer from 1 to 3;

R_4 is hydrogen, C_{1-3}alkyl, OH, SH, NH_2, NO_2, CF_3, halo or CN;

A is unsubstituted methylene or mono-substituted methylene.

4. A compound according to claim 2 wherein

X is -O-, -S-, -NH-;

Y is -O-, -S- or -N(R_5)-;

Z forms a covalent bond between adjacent methylene groups;

R_1 is C_1-C_{20}alkyl, C_2-C_{20}alkenyl, C_2-C_{20}alkynyl, $(A)_nC(O)R_6$, $-(A)_nC(S)R_6$, $-(A)_nS(O)R_6$, $-(A)_nS(O)_2R_6$, $-(A)_nOR_7$, $-(A)_nSR_7$, $-(A)_nN(R_8)_2$, $(A)_nC(=NR_9)R_{10}$ or $(A)_nR_{11}$ where n, R_6, R_7, R_8, R_9, R_{10} and R_{11} are defined above;

R_2 is hydrogen, methyl, OH, OCH_3, SH, NH_2, NO_2, CF_3, halo or CN;

R_3 is C_{1-3}alkyl, $-(CH_2)_mNH_2$, $-(CH_2)_m$-OH, $-(CH_2)_mSH$ or heterocyclyl where m is defined above;

R_4 is hydrogen, methyl, OH, OCH_3, SH, NH_2, NO_2, CF_3, CF_3, halo or CN.

5. A compound according to claim 2 wherein

X is -O- or NH;

Y is -O- or -N(R_{18})- where R_{18} is selected from hydrogen, C_{1-20}alkyl, C_{1-20}alkenyl, C_{1-20}alkenyl, C_{1-20}alkynyl and $(CH_2)_nR_{11}$ where R_{11} and n are defined above;

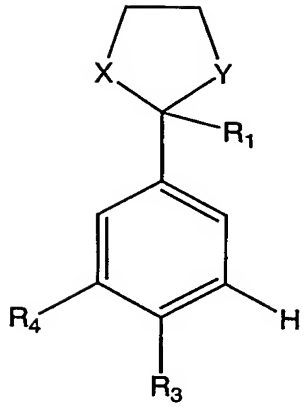
Z forms a covalent bond between adjacent methylene groups;

R_2 is hydrogen, halomethyl, OH, OCH_3, SH, NH_2, NO_2 or CN;

R_3 is hydrogen, C_{1-3}alkyl, $(CH_2)_mNH_2$, $(CH_2)_mOH$ or $(CH_2)_mCF_3$ or heterocyclyl where m is defined above;

R_4 is hydrogen, methyl, OH, OCH_3, SH, NH_2, NO_2 or CN.

6. A compound according to claim 1 of formula (III)



(III)

wherein

X is -O- or -NH-;

Y is -O- or -N(R_{18})- where R_{18} is defined above;

R_3 is hydrogen, NH_2, OH;

R_4 is hydrogen, methyl, OCH_3, or OH.

7. A compound according to claim 6 wherein R_1 is selected from $(A)_nOR_7$ where n is 0.

8. A compound according to claim 1 wherein

X is –S-;

Y is –N(R_5)-;

X' is –C(R_5)$_2$-;

Y' is –C(R_5)$_2$-;

Z forms a covalent bond between X' and Y'.

9. A compound according to claim 8 wherein

Y is –NH-;

X' is –CH_2-;

Y' is –CH_2-;

R_1 is H.

10. A compound according to claim 1 wherein

X and Y are each –O-;

X' and Y' are each $-C(R_5)_2-$;

Z forms a covalent bond between X' and Y'.

11. A compound according to claim 10 wherein

X' and Y' are each $-CH_2-$; R_1 is H.

12. A compound according to claim 1 wherein

X and X' taken together form $-C(R_5)=N-$;

Y is $-C(R_5)-$ and taken together with the carbon atom bearing the phenyl group forms a double bond;

Y' is $-N(R_5)-$;

Z forms a covalent bond between X and Y'.

13. A compound according to claim 12 wherein

Y is –CH-;

X is –CH-.

14. A compound according to claim 1 wherein

X and X' taken together form $-C(R_5)=N-$;

Z together with Y' forms $-C(R_5)=C(R_5)-$;

Y is $-C(R_5)-$ and together with the carbon atom bearing the phenyl group forms a double bond.

15. A compound according to claim 14 wherein

X is $-C(OCH_3)$;

Z together with Y' forms $-C(OCH_3)=CH-$;

Y is –CH-.

16. A compound according to claim 1 wherein

X' is $-C(R_5)_2-$;

Y' is $-C(R_5)_2-$;

Z is $-C(R_5)_2-$;

X and Y are each –O-.

17. A compound according to claim 16 wherein

X', Y' and Z are each $-CH_2-$; R_1 is H.

18. A compound according to claim 1 wherein

X and Y are each –S-;

X' and Y' are each $-C(R_5)_2-$;

Z forms a covalent bond between X' and Y'.

19. A compound according to claim 18 wherein

X' and Y' are each $-CH_2-$; R_1 is H.

20. A compound according to claim 1 wherein

X is –S-;

Y is –O-;

X' and Y' are each $-C(R_5)_2-$;

Z forms a covalent bond between X' and Y'.

21. A compound according to claim 20 wherein

X' and Y' are each $-CH_2-$.

22. A compound according to claim 1 wherein

X and X' taken together form $-C(R_5)=C(R_5)-$;

Z together with Y' forms $-C(R_5)=C(R_5)-$;

Y is $-C(R_5)-$ and together with the carbon atom bearing the phenyl group forms a double bond.

23. A compound according to claim 22 wherein

X and X' taken together form –CH=CH-;

Z together with Y forms –CH=CH-;

Y is –CH-.

24. A compound according to claim 1 wherein

Y is –N- and taken together with the carbon atom bearing the phenyl group forms a double bond;

X is –O-;

X' and Y' are each $-C(R_5)_2-$

Z forms a covalent bond between X' and Y'.

25. A compound according to claim 24 wherein

X' and Y' are each $-CH_2-$.

26. A compound according to claim 1 wherein

X and Y are each $-C(R_5)_2-$;

X' and Y' are each $-N(R_5)-$;

Z is $C(R_5)_2$.

27. A compound according to claim 1 wherein

X is –O-;

Y' is $-N(R_5)-$;

X' and Y are each $-C(R_5)_2-$.

28. A compound according to claim 1 wherein

X and X' are each $-C(R_5)_2-$;

Y is $-N(R_5)-$;

Y' is $C(R_5)_2-$;

Z forms a covalent bond between X' and Y'.

29. A compound according to claim 1 wherein

X is $-N(R_5)-$;

X' is $-C(R_5)_2-$;

Y is $-C(R_5)_2-$;

Y' is $-N(R_5)-$;

Z forms a covalent bond between X' and Y'.

30. A compound according to claim 1 wherein

X and X' are each $-C(R_5)_2-$

Y is $-C(R_5)_2-$;

Y' is $-N(R_5)-$;

Z is $-C(R_5)_2-$

31. A compound according to claim 1 selected from the group consisting of:

2-(2-hydroxyethoxy)-2-(4-hydroxy-3-methylphenyl)-1,3-dioxolane;

2-(2-hydroxyethoxy)-2-(4-hydroxyphenyl)-1,3-dioxolane;

2-(2-hydroxyethoxy)-2-(3-bromo-4-hydroxy-5-methylphenyl)-1,3-dioxolane;

2-(4-Bromophenyl)-1,3-thiazolane;

2-(4-Methoxyphenyl)-1,3-thiazolane;

4-(1,3-Thiazolidin-2-yl)benzonitrile;

2-(4-Hydroxy-3-methoxyphenyl)-1,3-thiazolane;

2-(3,4-Dimethoxyphenyl)-1,3-thiazolane;

Methyl 4-[2-(4-fluorophenyl)-1,3-dioxolan-2-yl]butanoate;

4-[2-(4-Fluorophenyl)-1,3-dioxolan-2-yl]butan-1-ol;

2-(4'-Bromophenyl)-2-butyl-1,3-dioxolane;

4-(4-Methoxyphenyl)-1-(3-methylbutyl)-1*H*-pyrazole;

1-(3-Methylbutyl)-4-(4-methylphenyl)-1*H*-pyrazole;

2,6-Dimethoxy-3-[4-(trifluoromethoxy)phenyl]pyridine);

2-[4-(2-Thienyl)phenyl]-1,3-thiazolane;

2-Ethyl-2-(4-methoxyphenyl)-1,3-dioxolane;

2-Hexyl-2-(4-methylphenyl)-1,3-dithiolane;

2-Methyl-2-(4-methylphenyl)-1,3-dithiolane;

2-Hexyl-2-(4-methylphenyl)-1,3-dioxolane;

2-(4-Chlorophenyl)-2-methyl-1,3-dioxane;

2-(4-Chlorophenyl)-2-methyl-1,3-dioxolane;

2-Methyl-2-(4-methylphenyl)-1,3-dioxane;

2-Methyl-2-(4-methylphenyl)-1,3-dioxolane;

2-(4-Chlorophenyl)-2-methyl-1,3-dithiolane;

2-(4-Nitrophenyl)-2-methyl-1,3-dioxolane;

2-(4-Nitrophenyl)-2-methyl-1,3-dioxane;

2-(4-Methoxyphenyl)-1,3-oxathiolane;

2-(3,4,5-Trimethoxyphenyl)-1,3-oxathiolane;

2-Methoxy-4-(1,3-oxathiolan-2-yl)phenol;

4-(1,3-Oxathiolan-2-yl)benzonitrile;

2-(4-Bromophenyl)-2-ethyl-1,3-oxathiolane;

4-(5-Methyl-1,3-oxathiolan-2-yl)benzonitrile;

2-(4-Thien-2-ylphenyl)-1,3-oxathiolane;

4-(5-Methyl-2-octyl-1,3-oxathiolan-2-yl)phenol;

2-Fluoro-5-(5-methyl-1,3-oxathiolan-2-yl)benzenecarbonitrile;

4-Methoxy-4'-(trifluoromethoxy)-1,1'-biphenyl;

2,6-Dimethoxy-3-[4-(trifluoromethyl)phenyl]pyridine;

2-(4-bromophenyl)-2-butyl-4-propyl-1,3-oxathiane;

4-(1,3-Dioxolan-2-yl)benzenecarbonitrile;

2-(3,5-Dimethoxyphenyl)-2-hexyl-1,3-dioxolane;

2-(4-Chlorophenyl)-2-ethyl-4-methyl-1,3-dioxolane;

5-(5,5-Diethyl-1,3-dioxan-2-yl)-2-fluorobenzenecarbonitrile;

2-(4-Chlorophenyl)-4,5-dihydro-1,3-oxazole;

2-(4-Methylphenyl)-4,5-dihydro-1,3-oxazole.

32. A compound according to claim 31 selected from the group consisting of:

2-(2-hydroxyethoxy)-2-(4-hydroxy-3-methylphenyl)-1,3-dioxolane;

2-(2-hydroxyethoxy)-2-(4-hydroxyphenyl)-1,3-dioxolane;

2-(2-hydroxyethoxy)-2-(3-bromo-4-hydroxy-5-methylphenyl)-1,3-dioxolane;

Methyl 4-[2-(4-fluorophenyl)-1,3-dioxolan-2-yl]butanoate;

4-[2-(4-Fluorophenyl)-1,3-dioxolan-2-yl]butan-1-ol;

2-(4'-Bromophenyl)-2-butyl-1,3-dioxolane;

4-(4-Methoxyphenyl)-1-(3-methylbutyl)-1*H*-pyrazole;

1-(3-Methylbutyl)-4-(4-methylphenyl)-1*H*-pyrazole;

2,6-Dimethoxy-3-[4-(trifluoromethoxy)phenyl]pyridine);

2-[4-(2-Thienyl)phenyl]-1,3-thiazolane;

2-Ethyl-2-(4-methoxyphenyl)-1,3-dioxolane;

2-Hexyl-2-(4-methylphenyl)-1,3-dithiolane;

2-Hexyl-2-(4-methylphenyl)-1,3-dioxolane;

2-(4-Bromophenyl)-2-ethyl-1,3-oxathiolane;

4-(5-Methyl-1,3-oxathiolan-2-yl)benzonitrile;

2-(4-Thien-2-ylphenyl)-1,3-oxathiolane;

4-(5-Methyl-2-octyl-1,3-oxathiolan-2-yl)phenol;

2-Fluoro-5-(5-methyl-1,3-oxathiolan-2-yl)benzenecarbonitrile;

4-Methoxy-4'-(trifluoromethoxy)-1,1'-biphenyl;

2,6-Dimethoxy-3-[4-(trifluoromethyl)phenyl]pyridine;

2-(4-bromophenyl)-2-butyl-4-propyl-1,3-oxathiane;

4-(1,3-Dioxolan-2-yl)benzenecarbonitrile;

2-(4-Chlorophenyl)-2-ethyl-4-methyl-1,3-dioxolane;

5-(5,5-Diethyl-1,3-dioxan-2-yl)-2-fluorobenzenecarbonitrile.

33. A compound according to claim 1 selected from the group consisting of:

2-(2-hydroxyethoxy)-2-(4-hydroxy-3-methylphenyl)-1,3-dioxolane;

4-(4-Methoxyphenyl)-1-(3-methylbutyl)-1*H*-pyrazole;

1-(3-Methylbutyl)-4-(4-methylphenyl)-1*H*-pyrazole;

2-Hexyl-2-(4-methylphenyl)-1,3-dithiolane;

2-Methyl-2-(4-methylphenyl)-1,3-dithiolane;

2-(4-Thien-2-ylphenyl)-1,3-oxathiolane;

4-Methoxy-4'-(trifluoromethoxy)-1,1'-biphenyl;

2,6-Dimethoxy-3-[4-(trifluoromethyl)phenyl]pyridine.

34. A method of inhibiting cytokine or biological activity of MIF comprising contacting MIF with a cytokine or biological inhibiting amount of a compound according to any one of claims 1 to 33.

35. A method of treating, preventing or diagnosing a disease or condition wherein MIF cytokine or biological activity is implicated comprising the administration of a treatment, prevention or diagnostic effective amount of a compound according to any one of claims 1 to 33 to a subject in need thereof.

36. The use of a compound according to any one of claims 1 to 33 in the manufacture of a medicament for the treatment, prevention or diagnosis of a disease or condition wherein MIF cytokine or biological activity is implicated.

37. A method according to claim 35 or a use according to claim 36 wherein the disease or condition is selected from the group consisting of autoimmune diseases, tumours or chronic or acute inflammatory diseases.

38. A method or use according to claim 37 wherein the disease or condition is selected from the group consisting of: rheumatoid athritis, systemic lupus eryhtematosus, ulcerative colitis, Crohn's disease, multiple sclerosis, psoriasis, uveitis, atherosclerotic vascular disease, asthma and chronic obstructive pulmonary disease.

39. A method according to claim 35 wherein the subject is a human subject.

40. A pharmaceutical composition comprising a compound according to any one of claims 1 to 33 and a pharmaceutically acceptable carrier , diluent or excipient

41. A pharmaceutical composition according to claim 40 further comprising a glucocorticoid.

42. A method of treating or preventing a disease or condition wherein MIF cytokine or biological activity is implicated comprising:

administering to a mammal a compound according to any one of claims 1 to 33 or a pharmaceutically acceptable salt or prodrug thereof and a second therapeutic agent.

43. A method according to claim 42 wherein the second therapeutic agent is a glucocorticoid.

44. A method of prophylaxis or treatment of a disease or condition for which treatment with a glucocorticoid is indicated, said method comprising:

administering to a mammal a glucocorticoid and a compound according to any one of claims 1 to 33 or a pharmaceutically acceptable salt or prodrug thereof.

45. A method of treating a steroid-resistant disease or condition comprising:

administering to a mammal a glucocorticoid and a compound according to any one of claims 1 to 33or a pharmaceutically acceptable salt or prodrug thereof.

46. A method of enhancing the effect of a glucocorticoid in mammals comprising administering according to any one of claims 1 to 33 simultaneously, separately or sequentially with said glucocorticoid.